THE UNITHED STAYLES OF AMERICA

TOALL TO WHOM THESE PRESENTS SHALL COME:
Busch Agricultural Resources, Inc.

Whereas, there has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF Eighteen Years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exude others from selling the variety, or offering it for sale, or reproducing it, importing it, or exporting it, or using it in producing a hybrid or different the therefrom, to the extent provided by the Plant Variety Protection Act.

United States seed of this variety (1) shall be sold by variety name only as of certified seed and (2) shall conform to the number of generations the owner of the rights. (84 Stat. 1542, as amended, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'B1215'

In Testimony Watercot, I have hereunto set my hand and caused the seal of the Plant Bariety Protection Office to be affixed at the City of Washington, D.C. this 30th day of April in the year of our Lord one thousand nine hundred and ninety-three.

Aller

Kenneth Hevars Commissioner

Plant Variety Protection Office Agricultural Marketing Service

Cibe VIII

		APPROVAL EXPIRES 4-30-85			
U.S. DEPARTMENT OF AGRICULTU AGRICULTURAL MARKETING SERV	JRE /ICE	FORM APPROVED: OMB NO. 0581-0055 Application is required in order to determine if a plant variety protection certificate is to			
APPLICATION FOR PLANT VARIETY PROTE((Instructions on reverse)	CTION CERTIFICATE	be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).			
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME			
Busch Agricultural Resouces, Inc.	2B82-8529 or TR930 -	B1215			
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)	5. PHONE (Include area code)	FOR OFFICIAL USE ONLY			
3515 East County Rd. 52	(303)221-5622	PVPO NUMBER			
P.O. Box 8306 —Fort Collins CO 80524	FAX:(303)482-5965	9000073			
Fort Collins CO 80524 * 6. GENUS AND SPECIES NAME 7. FAMILY NAME	MF (Rotanical)	OA/TE			
Hordeum vulgare L. Gramin		TYME TYME TO WAM DEM			
8. KIND NAME	DATE OF DETERMINATION	IAMOUNT FOR FILING			
Spring Barley	1) 1982 February 2) 1988 1982 Per Ce	DATE AMOUNT FOR CERTIFICATE			
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM partnership, association, etc.)	OF ORGANIZATION (Corporation, 26 MM	E 17.11,5-11.11			
Corporation	1993	\$ \$250.00 March 26, 1993			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware		12. DATE OF INCORPORATION 1-1-81			
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), I	F ANY TO SERVE IN THIS APPLIC	_			
Dr. Leslie Wright Busch Agricultural Resources, Inc. 3515 E. CO. Rd. 52 Ft. Collins, CO 80524	PHONE (Include are	FAX:(303)482-5965			
14 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMIT					
a. X Exhibit A, Origin and Breeding History of the Variety (See	Section 52 of the Plant Variety Pro	tection Act.)			
b. Exhibit B, Novelty Statement. c. Exhibit C, Objective Description of Variety (Request form	From Direct Veriate Protection Offic				
d. Exhibit D, Additional Description of Variety (Request form	from Fight variety Protection Offic				
e. Exhibit E. Statement of the Basis of Applicant's Ownership	Exhibit F.; Quality	&Agronomic Data			
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARI SEED? (See Section 83(a) of the Plant Variety Protection Act.)	ETY BE SOLD BY VARIETY NAME				
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, Y	WHICH CLASSES OF PRODUCTION			
X Yes No	X Foundation	X Registered X Certified			
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTI	ON OF THE VARIETY IN THE U.	S.? Yes (If "Yes," give date)			
		XX No			
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE,	OR MARKETED IN THE U.S. OR	OTHER COUNTRIES ? Yes (If "Yes," give names of countries and dates)			
		XX No			
20. The applicant(s) declare(s) that a viable sample of basic seed plenished upon request in accordance with such regulations a		with the application and will be re-			
The undersigned applicant(s) is (are) the owner(s) of this sex distinct, uniform, and stable as required in Section 41, and is Variety Protection Act.	ually reproduced novel plant var sentitled to protection under the	riety, and believe(s) that the variety is e provisions of Section 42 of the Plant			
Applicant(s) is (are) informed that false representation hereis	n can jeopardize protection and	result in penalties.			
SIGNATURE OF APPLICANT		Jan 24, 1990			
SKNA JOREJOF APPLICANT	·	DATE DATE			
		17/			

Origin and Breeding History of B1215

Experimental Line number: 2B82-8529/TR930/BA8529

Pedigree: KLAGES/RPB72-456

<u>Date of Cross</u>: The parents were crossed in the Fall 1979 greenhouse.

History: F1 seed bulked and grown in Spring 1980 greenhouse. F2 seed grown at Irricana, Alberta. A single seed from an F2 selection was advanced in the F3 by single seed descent in the Fall 1980 greenhouse. An F4 head row derived from the F3 plant was selected in Irricana, Alberta, 1981. Malting quality tests on remnant F4 head row seed assisted in the selection of an F5 seed increase plot that was grown at Christchurch, New Zealand in 1981. The New Zealand increase plot was harvested, bulk threshed, and entered in first year yield trials grown at Irricana, Alberta, Spring 1982, as an F2 derived F6 bulk, under the experimental line number 2B82-8529.

This line was advanced to second year yield trials in 1983 and grown at four Canadian locations. 1984 - 1986 it was tested in Canadian regional trials under the name TR930. In 1985 the experimental line was entered in the U.S. Intermountain second year yield trials and grown from 1986 -1989. It was given the name B1215 in 1989. B1215 was also tested as BA8529 in the 1988 and 1989 Western Spring Barley Nursery in the Intermountain and Western barley growing states of Colorado, Idaho, Wyoming, Montana, Oregon, and Washington.

Purification of B1215 was initiated in 1985 with 96 head rows being grown at Berthoud, Colorado and 88 head rows selected to be bulked for breeder seed. Additional selection was done in 1985 with 96 head rows grown in 1986 of which 83 was selected and bulked for breeder seed.

B1215 is uniform and stable. Less than .5% of the plants were rogued from the breeder seed fields in 1988 in which .2 acres were grown in Arizona and 500 pounds of Foundation seed was produced. Approximately 98% of these rogued variant plants were 2 to 6 centimeters taller than B1215. Less than .5% of any type variant plants may be encountered in subsequent generations. B1215 has been tested as BA8529 in the Western Spring Barley

B1215 has been tested as BA8529 in the Western Spring Barley Nursery in 1988, 1989, which include the Western barley growing states of Colorado, Idaho, Wyoming, Montana, Oregon, and Washington.

NOVELTY STATEMENT

B1215 is most similar to the spring barley variety Klages, however it can be distinguished by the following morphological characteristics:

- B1215's glume hairs are confined to a band. Klages glume hairs completely cover the glume.
- B1215's seed hull is semiwrinkled. Klages seed hull is slightly wrinkled.
- B1215 has few teeth on the lemma. Klages has no teeth present on it's lemma.

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE LIVESTOCK, POULTRY, GRAIN & SEED DIVISION BELTSVILLE, MARYLAND 20705

EXHIBIT C (Barley)

OBJECTIVE DESCRIPTION OF VARIETY BARLEY (HORDEUM VULGARE)

INSTRUCTIONS: See Reverse. BARLEY (HORDEUM VI	JLGARE)
NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
BUSCH AGRICULTURAL RESOURCES, INC.	PYPO NUMBER
AODRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	9000073
3515 EAST COUNTY ROAD #52 FORT COLLINS COLORADO 80524	VARIETY NAME OR TEMPORARY DESIGNATION B1215
Place the appropriate number that describes the varietal character of this Place a zero in first box (i.e. 0 8 9 or 0 9) when number is eithe	
1. GROWTH HABIT:	
1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER 2	Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT
2. MATURITY (50% Flowering):	
2 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LA	TE (Frontier)
No. of days Earlier than 8 1 = 8ETZES 2 = CALIFORNI No. of days Later than 5 = PIROLINE 6 = PRIMUS	ia mariout 3 = conquest 4 = dickson 7 = unitan 8=K1 ages
3, PLANT HEIGHT (From soil level to top of head):	
	ALL (Berzes) 4 = TALL (Conquert)
3 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TA	ITT (Darse) 4 - 1 VCF (condens)
0 2 Cm. Shorter than 8 1 = BETZES 2 = CALIFORN 5 = PRINCUS 6 = PRINCUS	IIA MARIOUT 3 - CONQUEST 4 - DICKSON 7 - UNITAN 8=K1 ages
Cm. Tailer than)	
4. STEM:	
1 = 0 - 3 cm. 2 = 3 - 10 cm. 1 = 0 - 3 cm. 2 = 3 - 10 cm. 1 = 0 - 3 cm. 2 = 3 - 10 cm.	Anthocyanin: 1 = ABSENT 2 = PRESENT
0 5 NO. OF NODES (Originating from node above ground)	
1 = CLOSED 2 = V-SHAPED 3 = OPEN	1 = STRAIGHT 2 = SNAKY Shape of Neck: 3 = OTHER (Specify)
5. LEAF:	
Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT 2 P	osition of flag keaf (at boot stage): 2 = UPRIGHT to 90 deg
2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 1 = ABSENT (Glossy) 5	angle from stem. MM. WIDTH (First leaf below flag leaf)
2.2 CM. LENGTH (First leaf below flag leaf)	nthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT
6. HEAD:	1 = LAX 2 = ERECT (Not dense)
1 Type: 1 = TWO-ROWED 2 = SIX-ROWED 4 D	Pensity: 3 = ERECT (Dense) 4=middense
Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify)	/axiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY
3= 1/4 - 1/2 OF HEAD	achis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
7. GLUME: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 = MORE THAN 1/2 OF LEMMA 3 H	lairs: 1 = NONE 2 = SHORT 3 = LONG
3 Hair covering: 1 - NONE 2 - RESTRICTED TO MIDDLE 3 - CO	NFINED TO BAND 4= COMPLETELY COVERED
2 Awris: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQU 3 = MORE THAN EQUAL TO LENGTH OF GLUMES	JAL TO LENGTH OF GLUMES
3 Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH	<u>4</u> .

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1	U	U	U	U	/	J

			7000073
5 Awn: 3=5	AWNLESS 2 = AWNLETS ON CENTRAL ROSHORT ON CENTRAL ROWS, AWNLETS ON L	DWS, AWNLESS ON LATE ATERAL ROWS 4 = SI	RAL ROWS HORT (less than equal to length of spike)
3 Awn Surface: 0	•	MOOTH 3 = ROUGH	
2 Teeth: 1 = AB	SENT 2 = FEW 3 = NUMEROUS	1 Hair: 1 = ABSE	ENT 2 = PRESENT
1 4 1 Shade of base:	1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE	2 Rachilla Hairs:	1 = SHORT 2 = LONG
9. STIGMA:			
2 Hairs: 1 = FEV	N 2 = MANY		
10. SEED:			
2 Type: 1 = NA	KED 2 = COVERED	1 Hairs on Ventral F	urrow: 1 = ABSENT 2 = PRESENT
3 Length: 1 = SI 4 = M	HORT (8.0 mm.) 2 = SHORT TO MIDLONG IIDLONG TO LONG (9.0 - 10.5 mm.)		IDLONG (8.5 - 9.5 mm.) DNG (10.0 mm.)
3 Wrinkling of hull	: 1 = NAKED 2 = SLIGHTLY WRINKLE	D 3 = SEMIWRINKLED	4 = WRINKLED
Aleurone Color:	1 = COLORLESS (White or Yellow) 2 = 8	LUE	
0 0 PERCENT A	BORTIVE	4 2 GMS. PER 10	000 SEEDS
11. DISEASE: (0 = Not	Tested, 1 = Susceptible, 2 = Resistant) $3=MO$	derately Suscept	ible 4=Moderately Resistant
1 SEPTORIA	1 NET BLOTCH	4 SPOT BLOTCH	0 POWDERY MILDEW
3 LOOSE SMUT	0 BACTERIAL BLIGHT	0 COVERED SMUT	0 FALSE LOOSE SMUT
0 STEM RUST	0 LEAF RUST	0 SCAB	0 SCALD
0 AY	0 BSMV	0 BYDV	O OTHER (Specify)
12. INSECT: (0 = Not te	ested, 1 = Susceptible, 2 = Resistant)		
0 GREEN BUG	ENGLISH GRAIN APHID	0 CHINCH BUG	0 ARMYWORM
0 GRASS HOPPERS	O CERIAL LEAF BETTLE	OTHER (Specify)	
HESSIAN FLY R	ACES O GP O A	0 s 0 c	
) O D O E	0 F 0 G	
13. CHEMICAL (0 = Not	Tested, 1 = Susceptible, 2 = Resistant)	· · · · · · · · · · · · · · · · · · ·	
O DDT	O OTHER (Specify)		
4. INDICATE WHICH V	ARIETY MOST CLOSELY RESEMBLES THA	T SUBMITTED:	
CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Klages		Klages
Leaf size	Klages	Seed size	
Leaf color •		Coleoptile elongation	Klages
	Klages	Seedling pigmentation	Klages
Leaf carriage	Klages	<u> </u>	
EFERENCES: The follow	lowing publications may be used as a refer	ance aid for the standard	direction of character descriptions and

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

- 1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
- 2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 84.
- 3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

EXHIBIT D.

ADDITIONAL BOTANICAL DESCRIPTION OF B1215

B1215 is a two-rowed spring barley bred and developed by Busch Agricultural Resources, Inc. It is midseason in maturity and has good malting quality.

B1215 has a semiprostrate juvenile growth habit. Plant color at boot is green with a semi-nodding spike attitude. Glume hair covering is confined to a band and glume awn is equal to glume length. Glume awn surface is rough. Lemma awn is long and rough. Rachilla hairs are long and rachis edge is covered. The seed hull is adhering and semiwrinkled and aleurone is colorless. Lemma shape of base is a depression.

B1215 is adapted to the Intermountain West which includes the states of Idaho, Montana and Colorado.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Busch Agricultural Resources, Inc. is the applicant for protection in this case being:

- a. The incorporated business registered in Delaware for and within which regular employees have bred B1215.
- b. The proprietory owner and intending commercial seller of B1215.

EXHIBIT F

QUALITY AND AGRONOMIC DATA

QUALITY SUMMARY DATA	.PAGE	1
BARI AGRONOMIC DATA	.PAGE	2
WESTERN SPRING BARLEY NURSERY	PAGE	3
MONTANA STATE UNIVERSITY	.PAGE	4
UNIVERSITY OF WYOMING	.PAGE	5
WASHINGTON STATE UNIVERSITY	.PAGE	6
DISEASE DATA	. PAGE	7

		Y	IELD	(% KL	AGES)			(20)	(11)	(12)
VARIETY OR LINE	(1) <u>84</u>	(1) <u>85</u>	(2) <u>86</u>	(2) <u>87</u>	(12) <u>88</u>	(4) <u>89</u>	(22) <u>AVE</u>	HEAD DATE	HT <u>CM</u>	LODGE INDEX
B1215	130	119	121	136	110	103	113	167	85	2.7
KLAGES	100 (95)	100 (92)		100 (98)		100			87	4.5

1984-89: 22 STATION YEARS

1988 WESTERN SPRING BARLEY NURSERY

VARIETY OR LINE	YIELD BU/AC	TEST WT LB/BU	HEIGHT INCHES	LODGE INDEX	HEAD DATE
B1215	87.9	51.5	28.3	19.3	177.2
KLAGES	80.5	50.6	28.7	41.2	178.3

NOTE: 1989 WESTERN SPRING BARLEY NURSERY DATA UNAVAILABLE AT THIS TIME.

NURSERY SITES: LETHBRIDGE, ALBERTA; TULELAKE, CA; BERTHOUD, CO; ABERDEEN, BONNERS FERRY, MOSCOW, ID; BOZEMAN, MANHATTAN, MT; WILLISTON, DICKINSON, MINOT, ND; FARMINGTON, NM; ONTARIO, MADRAS, HERMISTON, OR; LOGAN, UT; PULLMAN, WA; POWELL, SHERIDAN, WY.

MONTANA STATE UNIVERSITY

1988, 1989 YIELD TRIALS IRRIGATED

VARIETY	<u>YIELD BU/AC</u>	TEST WT BU/AC	HEAD	HEIGHT	LODGE
OR LINE	1988 1989 AVE		DATE	INCHES	INDEX
B1215	84.9 105.7 95.3	51.3	180.1	28.6	3.2
KLAGES	85.5 88.6 87.1	50.9		29.4	20.2
HARRINGTON	86.5 98.2 92.4	50.6		29.2	24.5

1989 DRYLAND YIELD TRIALS

VARIETY	YIELD	TEST WT	HEAD	HEIGHT
OR LINE	BU/AC	BU/AC	DATE	INCHES
B1215	85.5	52.5	174.7	26.3
KLAGES	42.5	48.4	187.5	23.7
HARRINGTON	51.2	47.7	185.4	24.0

UNIVERSITY OF WYOMING

1988, 1989 YIELD TRIALS

VARIETY	YIE	LD BU/AC	TEST WT	HEIGHT	HEAD	
OR LINE	<u>1988</u>	<u>1989 AVE</u>	<u>LB/BU</u>	INCHES	DATE	
B1215	69.7	58.4 62.6	50.3	22.0	177.5	
KLAGES	75.0	54.4 62.1	44.0	23.8	177.3	

WASHINGTON STATE UNIVERSITY

1989 YIELD TRIALS

VARIETY	YIELD	TEST WT _LB/BU	HEIGHT
OR LINE	BU/AC		INCHES
B1215	75.5	47.3	29.0
HARRINGTON	80.2	46.5	29.3
CLARK	74.2	44.4	33.0

DISEASE DATA

WESTERN CO-OPERATIVE TWO-ROW BARLEY TEST ALBERTA, CANADA 1985, 1986

VARIETY	% CO ROOT A		SMUT NUDA	(% INF HORD	'ECTED) NIGRA		T BLC SOLAT 858		SCLD	SEP.
B1215	47	75	91	9*	19*	8.5	10	7.0	s	S
HARRINGTON ELLICE	N 23 52	40 49	96 84	33 16	22 29	9.5 4.5	10 8	8.5 7.5	S S	S S

^{* = 1} YEAR DATA ONLY

A = SASKATOON LOCATION

B = SCOTT LOCATION